

Application No. 10/661,800
Amendment Dated November 5, 2006
Request for Continued Examination

LISTING OF CLAIMS

1-32. (Canceled).

33. (New) An apparatus for use in gripping a cylindrical member, the apparatus comprising:
a jaw body;
an insert having teeth for gripping the cylindrical member, said insert supported by said jaw body; and
a cam member having a first camming surface and a second camming surface;
wherein said cam member is disposed between said jaw body and said insert;
wherein said first camming surface allows rotational movement between said cam member and said insert and said second camming surface allows rotational movement between said cam member and said jaw body.

34. (New) The apparatus of claim 33 further comprising a plurality of camming surfaces in an opposing relationship to said first camming surface.

35. (New) The apparatus of claim 33 wherein said cam member comprises a generally longitudinal body having an axis, and said camming surfaces extend substantially parallel to said axis.

36. (New) The apparatus of claim 33 wherein:
said cam member further comprises a base portion and a lobe portion, said base portion including said second camming surface and said lobe portion extending from said base portion and including said first camming surface; and
said insert further includes a groove for receiving said lobe portion and engaging said first camming surface.

37. (New) The apparatus of claim 36 wherein said base portion has a base width and said lobe portion has a lobe width, wherein said base width is greater than said lobe width.

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38. (New) The apparatus of claim 33 further comprising a plurality of said inserts and a plurality of said cam members such that when a force is applied to said inserts, said inserts move and said cam members rotate substantially simultaneously, thereby intensifying the gripping force exerted on the cylindrical member.
39. (New) The apparatus of claim 33 wherein said jaw body further comprises a cam face having a recess retaining said cam member and said insert.
40. (New) The apparatus of claim 33 wherein said cam face further comprises an insert recess and a cam member recess, wherein said insert is disposed within said insert recess and said cam member is disposed within said cam member recess such that said jaw body and said insert substantially enclose said cam member.
41. (New) The apparatus of claim 33 wherein said cam member extends substantially the entire length of said jaw body.
42. (New) The apparatus of claim 33 further comprising means for supporting said cam member.:
43. (New) The apparatus of claim 42 wherein said supporting means comprises:
a first plate releasably attached to said jaw body; and
a second plate releasably attached to said jaw body.
44. (New) The apparatus of claim 33 further comprising means for supporting said insert.
45. (New) An apparatus for use in gripping a cylindrical member, the apparatus comprising:
a jaw body;
an insert having teeth for gripping the cylindrical member, said insert supported by said jaw body; and

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a cam member having a first curved camming surface and a second curved camming surface;

wherein said cam member is disposed between said jaw body and said insert;

wherein said first curved camming surface engages said insert and said second curved camming surface engages said jaw body.

46. (New) The apparatus of claim 45 wherein said first curved camming surface allows rotational movement between said cam member and said insert and said second curved camming surface allows rotational movement between said cam member and said jaw body.

47. (New) The apparatus of claim 45 further comprising a plurality of curved camming surfaces in an opposing relationship to said first curved camming surface.

48. (New) The apparatus of claim 45 wherein said cam member comprises a generally longitudinal body having an axis, and said camming surfaces extend substantially parallel to said axis.

49. (New) The apparatus of claim 45 wherein:

said cam member further comprises a base portion and a lobe portion, said base portion including said second curved camming surface and said lobe portion extending from said base portion and including said first curved camming surface; and

said insert further includes a groove for receiving said lobe portion and engaging said first curved camming surface.

50. (New) The apparatus of claim 49 wherein said base portion has a base width and said lobe portion has a lobe width, wherein said base width is greater than said lobe width.

51. (New) The apparatus of claim 45 further comprising a plurality of said inserts and a plurality of said cam members such that when a force is applied to said inserts, said inserts move

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and said cam members rotate substantially simultaneously, thereby intensifying the gripping force exerted on the cylindrical member.

52. (New) The apparatus of claim 45 wherein said jaw body further comprises a cam face having a recess retaining said cam member and said insert.

53. (New) The apparatus of claim 45 further comprising means for supporting said cam member.

54. (New) The apparatus of claim 53 wherein said supporting means comprises:
a first plate releasably attached to said jaw body; and
a second plate releasably attached to said jaw body.

55. (New) The apparatus of claim 45 further comprising means for supporting said insert.

56. (New) An apparatus for use in gripping a cylindrical member, the apparatus comprising:
a jaw body having an engaging face and a cam face, said cam face having at least one insert recess, wherein said insert recess further comprises at least one cam recess;
a cam member having a longitudinal axis and extending through said cam recess, said cam member having a first camming surface engaging the surface of said cam recess and a second camming surface opposite said first camming surface;
at least one insert having teeth for gripping the cylindrical member, said insert engaging said second camming surface and partially disposed within said insert recess;
and
wherein said cam member is rotatable about said longitudinal axis such that when said insert moves relative to said jaw body, said cam member rotates.

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57. (New) The apparatus of claim 56 wherein:

said cam member has a base portion adjacent said first camming surface and a lobe portion extending from said base portion and adjacent said second camming surface;
and

said insert has a groove for receiving said lobe portion and engaging said second camming surface.

58. (New) The apparatus of claim 57 wherein said base portion has a base width and said lobe portion has a lobe width, wherein said base width is greater than said lobe width.

59. (New) A jaw assembly for use in gripping a cylindrical member, the jaw assembly comprising:

a tong body;

at least two piston cylinders supported by said tong body such that said piston cylinders are circumferentially spaced about the cylindrical member, each of said piston cylinders having a piston extending through said piston cylinder;

first and second hydraulic fluid conduits supported by said tong body, wherein said first and second conduits are in fluid communication with said piston cylinders;

a jaw body removably attached to each of said piston cylinders;

an insert having teeth for gripping the cylindrical member, wherein said insert is supported by and movable relative to said jaw body;

a cam member having a longitudinal axis, wherein said cam member is rotatably supported by said jaw body; and

wherein said cam member is disposed between said jaw body and said insert and configured to engage said jaw body and said insert such that when said insert moves relative to said jaw body, said cam member rotates about said longitudinal axis.

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60. (New) The apparatus of claim 59 wherein said cam member further comprises a first curved camming surface engaging said insert and a second curved camming surface engaging said jaw body.

61. (New) The apparatus of claim 59 wherein:

said cam member has a base portion for engagement with said jaw body and a lobe portion extending from said base portion for engagement with said insert; and
said insert has a groove for receiving said lobe portion.

62. (New) A method for gripping a cylindrical member, the method comprising:

delivering a gripping apparatus to the cylindrical member, the gripping apparatus comprising:

a jaw body;

an insert having teeth for gripping the cylindrical member and supported by said jaw body; and

a cam member having a first curved camming surface and a second curved camming surface, said cam member disposed between said jaw body and said insert;

engaging said insert teeth with the cylindrical member;

imposing a gripping force on the cylindrical member;

rotating said gripping apparatus, causing said cam member to rotate relative to said jaw body and said insert; and

intensifying said gripping force.

63. (New) The method of claim 62 further comprising:

rotating said gripping apparatus in a direction opposite said previous rotating step, causing said cam member to rotate in a direction opposite said previous rotating step relative to said jaw body and said insert; and

intensifying said gripping force.

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64. (New) The method of claim 62 further comprising preventing slippage of said insert teeth relative to the cylindrical member.